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Heuristics for connectivity-based brain parcellation of SMA/pre-SMA through force-directed graph layout

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A. Supplementary Material

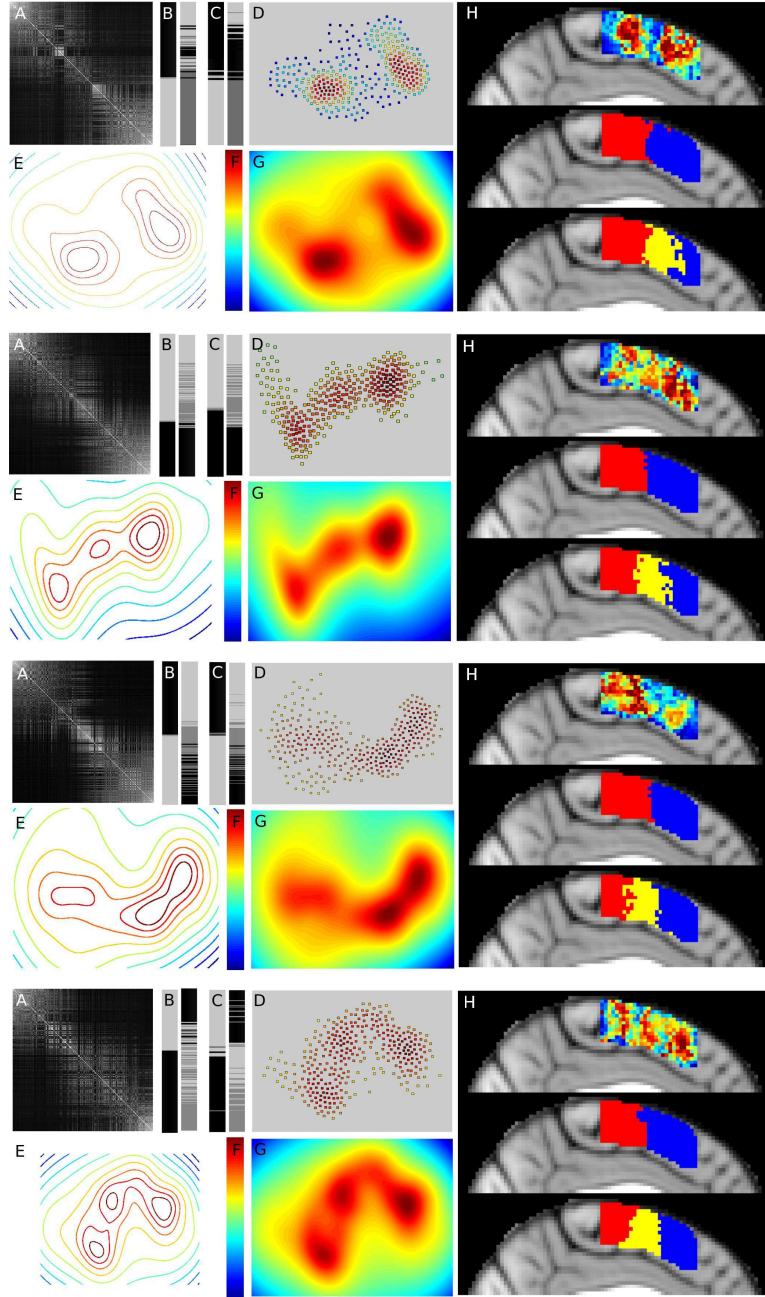


Figure A.1: Data of subjects 6, 7, 8, 9. Spectral reordering of the CCM(A). Comparison between k-means clustering with 2 and 3 clusters on CCM (B) and on graph layout (C); clusters are indicated by colours and mapped along the rows of the CCM. Graph layout (D). Iso-density lines (E) of the continuous density function (G). Images D, E, G are colour-coded according to the colour map F. MNI mapping of densities and k-means results ($k=2$ and $k=3$) on graph layout (H).

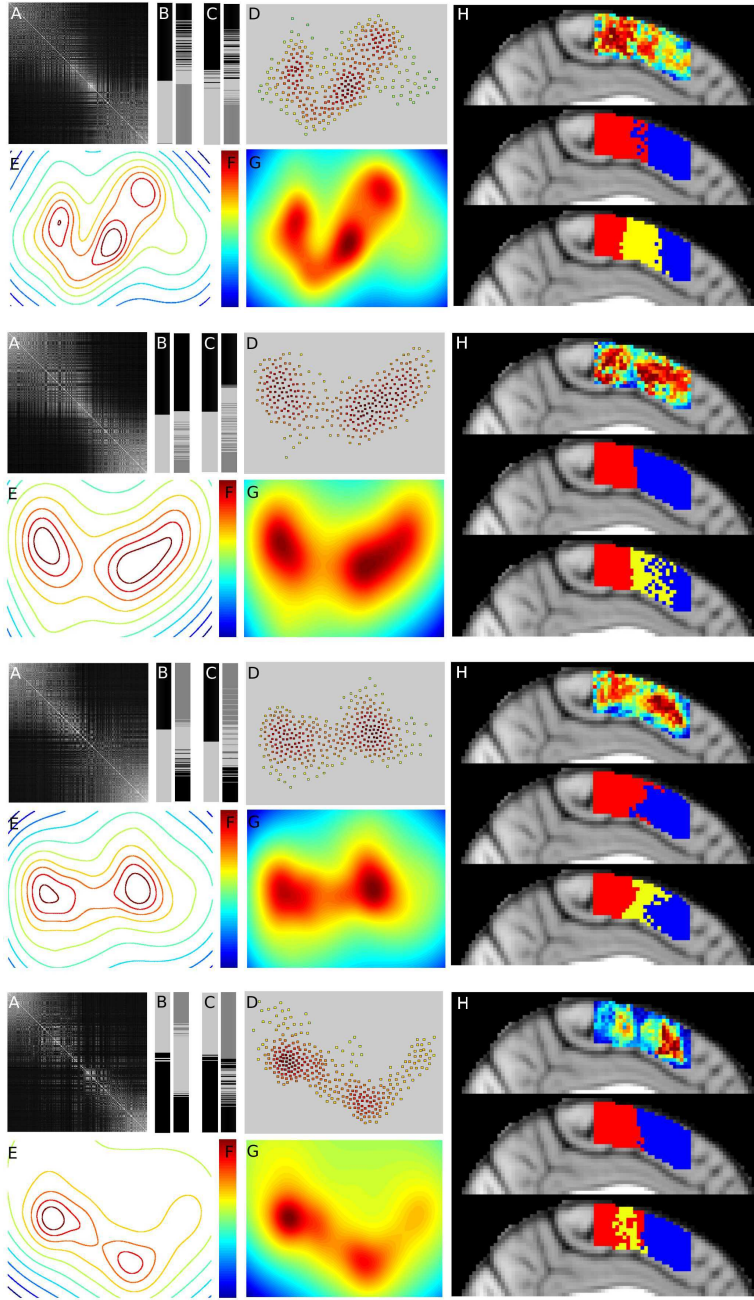


Figure A.2: Data of subjects 10, 11, 12, 13. Spectral reordering of the CCM(A). Comparison between k-means clustering with 2 and 3 clusters on CCM (B) and on graph layout (C); clusters are indicated by colours and mapped along the rows of the CCM. Graph layout (D). Iso-density lines (E) of the continuous density function (G). Images D, E, G are colour-coded according to the colour map F. MNI mapping of densities and k-means results (k=2 and k=3) on graph layout (H).

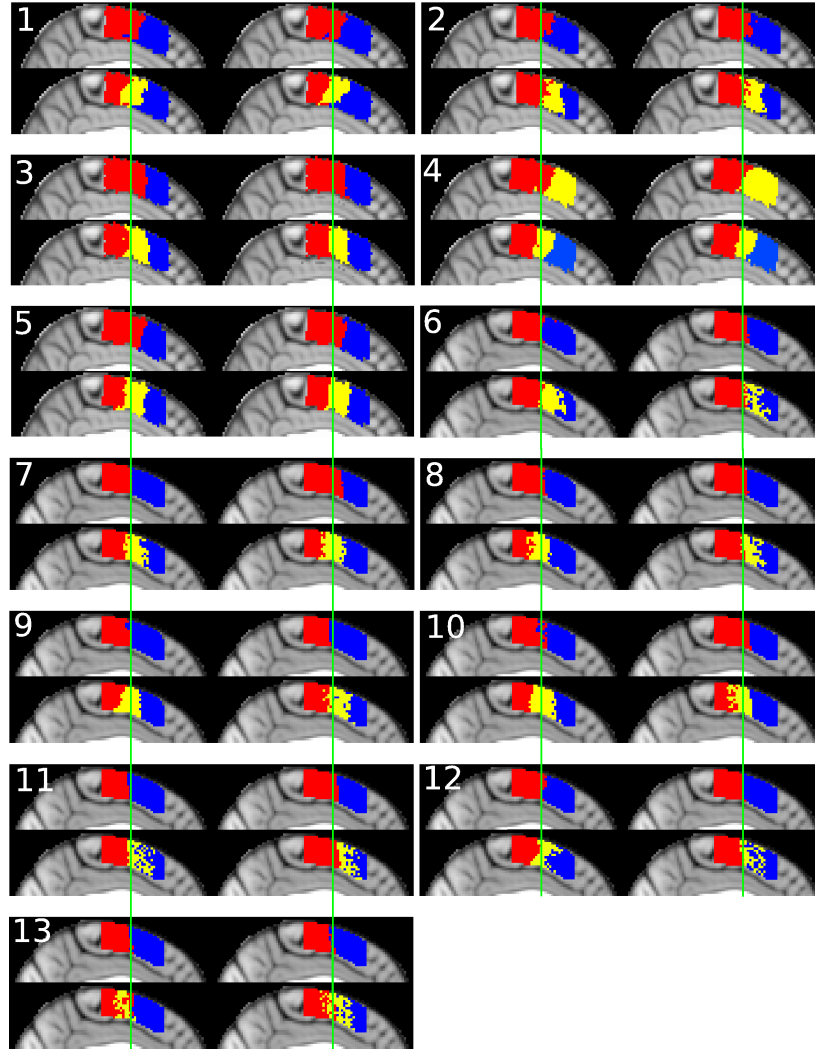


Figure A.3: Visual comparison between clustering of graph nodes and clustering of CCM for both 2 and 3 clusters for subjects 1-13. For each subject the four subfigures show: clustering of graph nodes for 2 clusters (top left); clustering of CCM for 2 clusters (top right); clustering of graph nodes for 3 clusters (bottom left); clustering of CCM for 3 clusters (bottom right). The green line represents $Y(MNI)=0$. See also Table 1 of the paper and Table A.1 below for quantitative results.

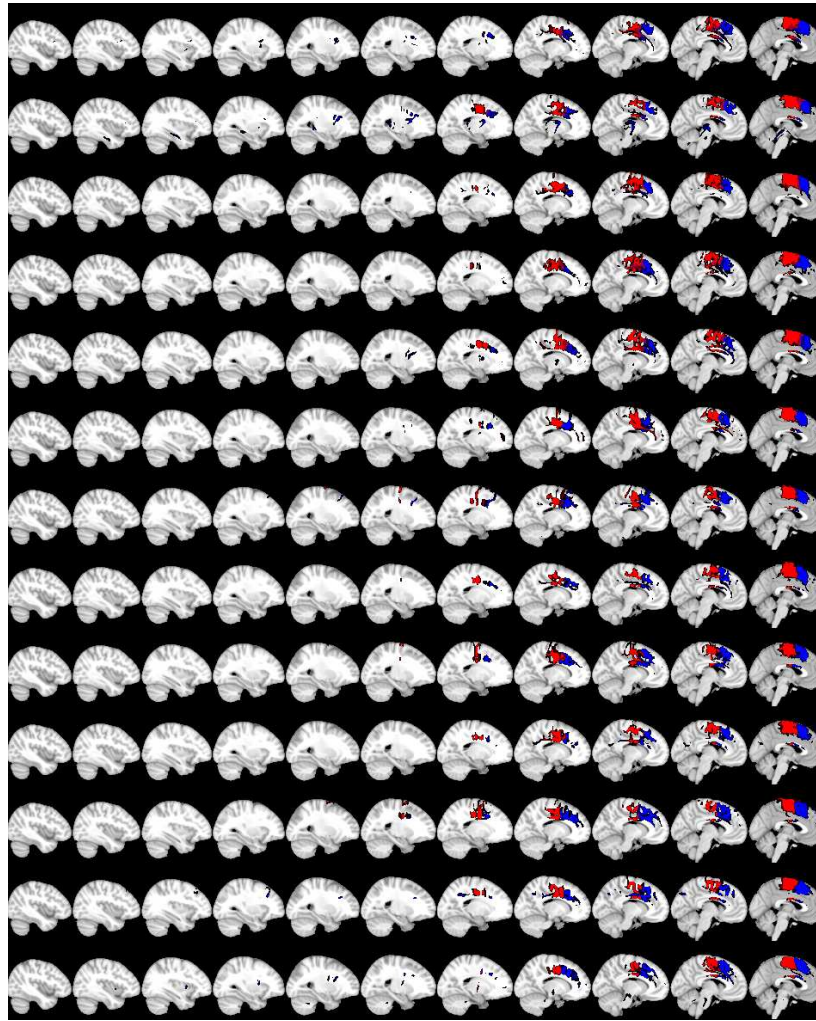


Figure A.4: Probabilistic tracking results seeded in k-means clusters found with $k=2$.

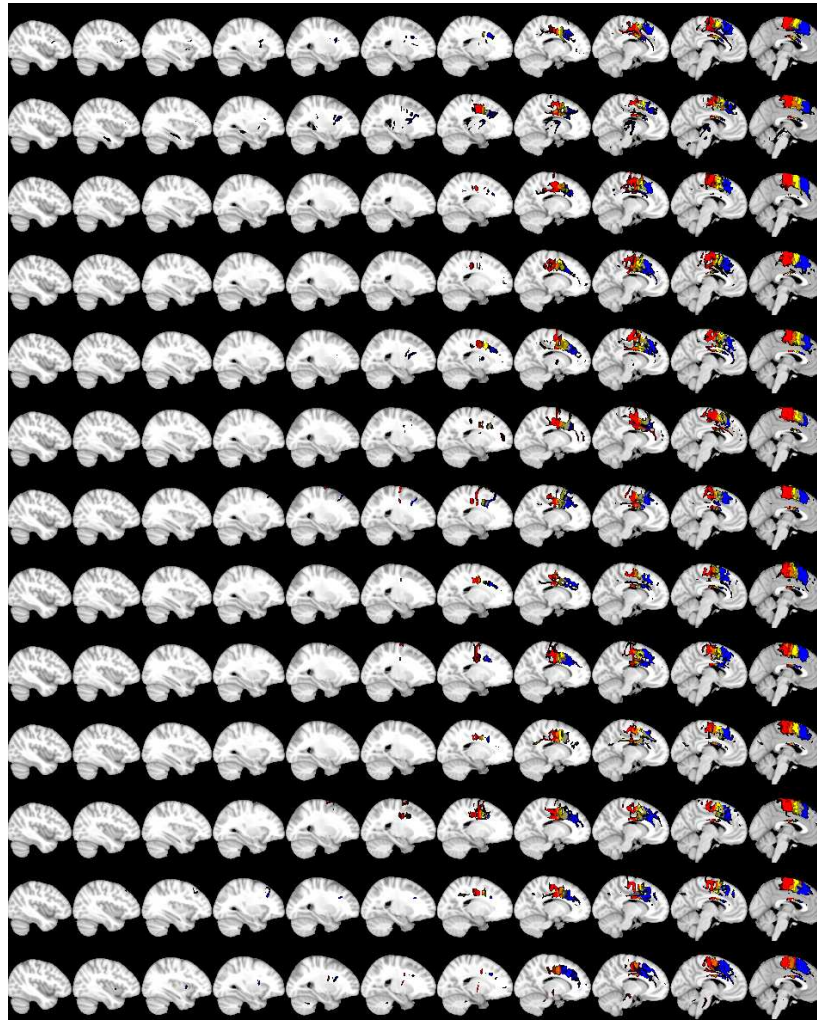


Figure A.5: Probabilistic tracking results seeded in k-means clusters found with $k=3$.

Table A.1: Overlap of k-means clustering results performed on the entries of the CCM and on the positions of the nodes in the graph layout, for subjects 6-13.

	subj.6	subj.7	subj.8	subj.9	subj.10	subj.11	subj.12	subj.13
2 clusters	96.1%	91.4%	98.3%	93.9%	87.4%	95.7%	96.1%	96.3%
3 clusters	77.5%	87.1%	74.7%	71.9%	85.3%	71.9%	83.7%	69.3%